

**46/03      December 2003**

## **SURVEY OF UNDECLARED HORSEMEAT OR DONKEYMEAT IN SALAMI AND SALAMI-TYPE PRODUCTS**

*This survey was conducted as part of the Agency's food authenticity programme, which aims to gather information about the description of food in the UK.*

### **Key Facts**

- Following an earlier pilot study, which found undeclared horsemeat in a number of salamis, the survey investigated the presence of undeclared horsemeat or donkey meat in salami and salami-type products on sale in the UK.
- 158 types of salami and salami-type products were sampled, including chorizos, mortadella, and saucisson produced in several different European countries. Samples were collected between August-September 2003 from a range of retail and wholesale catering outlets in 30 regions across the UK.
- Results of DNA analysis showed that only one chorizo sample contained traces of horsemeat at the limit of detection.
- Thus, this comprehensive, national survey has shown that there is no evidence of a problem with undeclared horsemeat or donkeymeat in salami-type products.
- Although not a primary aim of the survey, it did find a number of products which were not properly labelled; local authorities are following up these findings.

### **Summary**

1. The Food Standards Agency carried out a survey to detect the presence of horsemeat or donkey meat in salami and salami-type products.

2. A total of 158 samples, comprising 103 salami, 31 chorizo, 12 mortadella, 6 saucisson and 6 other similar comminuted products were collected between August-September 2003 by 30 local authorities throughout the UK. The samples collected were representative of the products (and their different countries of origin) being sold in the UK marketplace at the time of collection.
3. The samples were analysed for the presence of horsemeat or donkeymeat using a sensitive DNA-based technique that can detect horse and donkey specific DNA sequences in products. The following was found:
  - None of the products tested were found to contain horsemeat or donkey meat above the limit of detection by DNA analysis;
  - One chorizo product was found to contain traces of horsemeat at the limit of detection.
4. Although not the primary aim of the survey, a number of other mislabelling issues were identified where products and/or their ingredients were not being properly described according to food labelling regulations.
5. In summary, this more comprehensive, national survey has shown that there is no evidence of a problem with undeclared horsemeat or donkeymeat in salami-type products. The company whose product was found to contain trace levels of horsemeat has informed the Agency that it will be putting in place a more effective quality control system to ensure separation of different meat species on its production line. In respect of the other more general mislabelling issues found, the affected companies have been advised of the problems and all results have been passed on to the relevant local authorities for follow up action.

## **Background**

6. In the UK, consumption of Continental-style cold meats such as salami-type products has increased steadily and this trend is likely to continue. Such products sold in the UK are mostly imported from other European countries. In some countries, traditional recipes for salami and salami-type products may include meats from animals such as wild boar, horse and donkey. There are no restrictions on the meat-based ingredients that can be used to produce salamis provided all ingredients conform to hygiene requirements and are correctly labelled. However, because of consumer preference in

the UK, products containing horsemeat or donkeymeat are not normally found on sale here.

7. The Agency responded to anecdotal evidence that donkeymeat or horsemeat was being used to make imported salamis and similar products without being declared, by funding an informal pilot study undertaken by five local authorities earlier this year. The results showed that 3 out of a total of 24 products examined contained low levels of undeclared horsemeat. The pilot study results were published in an Agency press release in June 2003 <sup>(1)</sup>.
8. On the basis of these results, it was decided that a national survey, representative of the market for salami and salami-type products, should be undertaken to assess the full extent of the problem. Samples were chosen to reflect the different countries of origin, and products on sale in the UK and were divided in to five product types: Salami; Chorizio; Mortadella; Saucisson; and others (e.g. products such as keilbasa, a smoked sausage of Polish origin).

## Legislation

9. In the UK, it is an offence under Sections 14 and 15 of the *Food Safety Act 1990*<sup>(2)</sup> to sell food that is not of the nature, substance or quality demanded by the consumer or to falsely or misleadingly describe or present food. The misdescription of meat species in salami and salami-type products may constitute such an offence. Similarly, failure to adequately describe certain meat species in a food may constitute an offence under the *Food Labelling Regulations 1996 (as amended)*<sup>(3)</sup>.
10. In the UK up to 1 July 2003, the amount of meat in a salami could either be declared according to the rules under the Meat Products and Spreadable Fish Products Regulations 1984 (i.e. under MPSFPR, as minimum meat %)<sup>(4)</sup>, or according to the provisions on quantitative ingredient declaration (QUID) in the Food Labelling Regulations 1996 as amended (pork (%))<sup>(3)</sup>. However, from 1 July 2003 following an amendment to the Food Labelling Regulations<sup>(5)</sup>, the meat content can only be declared according to the QUID provisions and no longer according to the MPSFPR. Products which are dried and contain more than 100% meat, i.e. the end product weight is less than mixing bowl weight, should declare the amount of meat such as “made with x g of pork per 100g of product”.

## Sampling

11. Samples were collected by 30 local authorities in the following areas of the UK: Aberdeenshire, Bedfordshire, Belfast City Council, Bristol City Council, Bournemouth, Cumbria, Derbyshire, Durham, East Sussex County Council, Gloucestershire, Hampshire, Kent, London Borough of Hammersmith and Fulham, Milton Keynes, Newcastle, London Borough of Newham, Northamptonshire, Northumberland, Oxfordshire, Plymouth, Rhondda-Cynon-Taff, Shropshire, Southend on Sea, Surrey County Council, Tameside, London Borough of Wandsworth, West Lothian, West Yorkshire, Wiltshire, Worcestershire.
12. Collecting officers were provided with a written sampling protocol detailing the type of samples to be collected, and the product information to be recorded on a specially designed sample collection form. Samples were collected between August and September 2003 from a range of retail outlets across the UK, including 64 supermarkets, 29 independent retailers, 26 catering suppliers/wholesalers, 38 delicatessens and 1 butcher's shop.
13. A total of 158 samples, comprising 103 salami, 31 chorizo, 12 mortadella, 6 saucisson, and 6 other salami-type products were collected. The numbers collected are reflective of products available on sale in the marketplace in terms of different product types and their country of origin at the time of collection (see [Figures 1 and 2](#)). Samples collected included both pre-packed (127 samples) and non-prepacked, loose (31 samples) products which were either chilled/refrigerated, or vacuum-packed, or ambient, shelf-stable products.

## Methodology

14. The method is based on the polymerase chain reaction (PCR) which amplifies species specific fragments of DNA, which can be confirmed by comparison with standards. For the analysis of the samples in this survey, primers that amplify fragments unique to either horse or donkey as well as a second test using primers that are unique to horse species were used. If the sample tests positive, a second, horse-specific assay is performed and, by difference, the presence of horse or donkey is determined. The test is not quantitative. In validation experiments, the horse/donkey detection system

showed specificity, sensitivity and robustness for the detection of horse and donkey in foodstuffs.

### Analytical Quality Assurance

15. With each batch of test samples, the following standards and quality control measures were included: blank of the chemicals used (extraction control) containing all PCR components except target DNA; positive control containing all PCR components plus target DNA; and, negative control containing all PCR component plus non-target DNA (typically, pork DNA).
16. Negative controls and extraction controls gave no amplification of horse/donkey DNA, as expected. All of the DNA analyses showed expected results for the control material. All samples were run in duplicate and showed identical results.

### **Results & Discussion**

17. The full results are given in Table 1. Of the 158 salami and salami-type products tested, none were found to contain horsemeat or donkey meat above the limit of detection by DNA analysis. One chorizo product was found to contain traces of horsemeat at the limit of detection. However, as a 'trace' result, it can be assumed this was due to cross-contamination at the manufacturing plant, especially if other products containing horsemeat were being manufactured at the same site. Indeed, this has been confirmed by the company notified of this result and they will be taking appropriate corrective action in their quality control systems to ensure separation of different meat species in their future production (see the company's written response, reproduced at Annex 1).
18. Thus, this more comprehensive, national survey has shown that there is no evidence of a problem with undeclared horsemeat or donkeymeat in salami-type products.
19. Although not a primary aim of the survey, some samples revealed a number of mislabelling problems. Out of the 158 products collected, the following was found:
  - 12 (8%) of the samples did not give a QUID of the meat content (generally pork or occasionally beef ) in the list of ingredients;

- 21 (13%) of the samples did not give the meat content according to QUID rules but declared a minimum meat content (according to the MPSFPR). The rules changed on 1 July 2003;
- 7 (4%) of the samples gave an unclear or confusing QUID;
- 1 sample had inconsistent ingredients lists on the front and back of the packaging;
- 1 sample was found to have a misleading product name; and,
- 2 (1%) of the samples were not labelled in English as required for pre-packed products sold in the UK.

#### Follow-up Action

20. Advance notification of the adverse DNA result was sent to the company in the case of the sample found to contain traces of horsemeat in their product. This company was given the opportunity to comment on the results of the analysis and their written comments are reproduced in Annex 1. Where mislabelling issues were identified, the companies and relevant local authorities have been notified of the details of the problems and advised that under the amended Food Labelling Regulations, all products need to give a meat content according to QUID rules from the 1 July 2003.

#### **References**

- (1) Agency Press Release, "Horse meat for the high jump", 04.06.2003 ([www.food.gov.uk/news/newsarchive/horse\\_meat](http://www.food.gov.uk/news/newsarchive/horse_meat))
- (2) Food Safety Act 1990. S. 14 & 15. London: HMSO, ISBN: 0-10-541690-8
- (3) Food Labelling Regulations 1996 (as amended by SI 1999 No. 1483 (Food), FLR). *Statutory Instrument* 1996 No. **1499**. London: HMSO, 1996 & Regulation 19 (Quantitative Ingredient Declaration) of FLR
- (4) The Meat Products and Spreadable Fish Products Regulations 1984, SI 1984 No. 1566. London: HMSO, ISBN: 0-11-047566-6

(5) The Food Labelling (Amendment) (England) Regulations 2003, SI 2003 No. 474.  
London: HMSO, ISBN: 0-11-045185-6. Similar legislation exists in: Scotland (SI 2003  
No. 578); Wales (SI 2003 No. 832); and Northern Ireland (SR 2003 No. 159)

### **Further Information**

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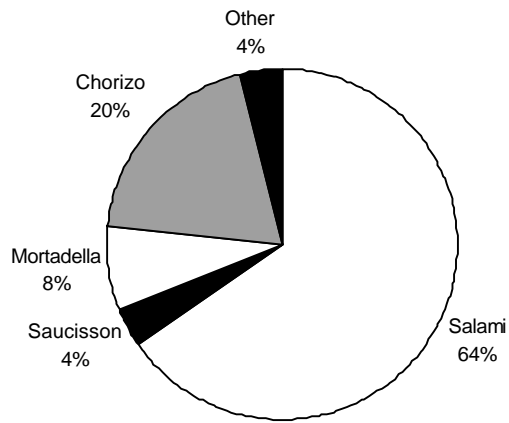
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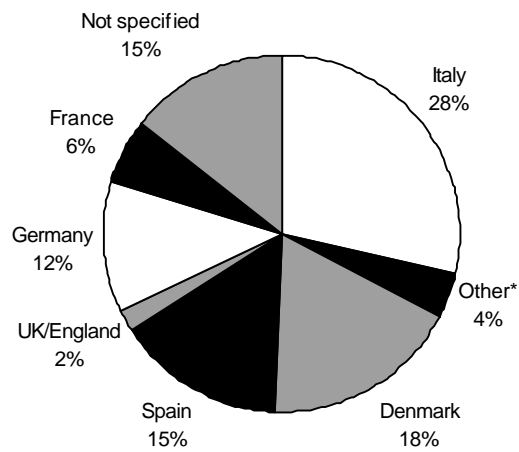
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**Figure 1: Breakdown of product types collected and their percentage share of the total surveyed**



\* Poland, Holland, Hungary, Austria

**Figure 2: Breakdown of the country of origin of the products analysed in the survey**

**WRITTEN COMMENTS RECEIVED FROM COMPANIES**

NB *The comments listed in this Annex were received by the Food Standards Agency in response to notification of their individual results from the companies concerned and reflect their views.*

**From: Busso Frères SA, 20-22 Rue Gabriel Péri, 93310 Le Pré Saint Gervais, France**

“The presence of horsemeat in this product it is not an intentional and undeclared addition. We do produce some saucisson made with horsemeat and during the production of the beef and pork chorizo there may have been some cross contamination with the horsemeat. If we continue to produce this product we will introduce additional quality control procedures to ensure there is no mixing or cross contamination of these meat species”.